

The essential nature of the EPCglobal network differs from the devices developed during the age of industrial revolution in that the primary goal is production of data and information. Lacking the tangible aspects of mechanical innovation, this new technology depends on using data and information to enhance practical decision-making in business rather than a focus on improvements in equipment, training, or methodologies, which were the traditional ways of increasing manufacturing productivity.

In support of the productivity potential of the EPCglobal Network, evidence exists that the information economy has created significant results. According to a Federal Reserve report published in 2000, productivity growth has increased an average of one percent when comparing the first half (1990–1995) to the second half (1995–2000) of the 1990's. Two-thirds of the increase has been traced to better use of information technology and increasingly efficient production of computers. Further, a significant portion traces to better supply chain management in the retail industry, an outcome of increased data about operations.

Conquering the dynamics of supply chains can only happen through the innovative use of information. As Harvard psychologist Donald Cox once stated, “information is the antidote to uncertainty.” Having real-time information on

the location of an object within a supply chain improves visibility and enhances such critical business functions as inventory control and the delivery of customer service. To date, various information technologies including the bar code have already had an important impact on the US economy by helping to mitigate inventory imbalances that often caused deep recessions. The EPCglobal Network and RFID technology have every prospect to strengthen this trend.

In addition to potentially significant macroeconomic economic impacts, the EPCglobal Network and RFID technology also offers the prospect for an integrated solution to the track and trace problem, which has important productivity implications for many industries. The open standards feature of the technology aids in the implementation of a supply chain wide applications. What follows is a brief case study that highlights the importance of track and trace technology within a specific supply chain.

Though food technology has advanced a great deal during the past century, there continues to be concern about the safety of fresh foods that are the unprocessed product of farms. Prone to contamination from salmonella, E. Coli, and other bacteria, the freshness of high protein foods such as meat, fish, poultry, and eggs is especially important in controlling outbreaks of foodborne illnesses. By one account, there are 76 million illnesses and 5,000 deaths

each year from food contaminated with various pathogens. The appearance of Bovine Spongiform Encephalopathy (BSE) or “Mad Cow Disease” in the U.K., Canada, and the United States along with other parts of the world has raised additional questions about food safety because the disease has a long latency period that spans several years. In this case, manifestation in humans would be difficult to associate with specific sources of foods, causing great uncertainty in linking cause to effect.

Because of all of these factors, there has been a growing interest in implementing tracing systems within agriculture, specifically the livestock industry. The basis of any system of this type depends on some form of unique identification that the EPCglobal Network and RFID can provide.

In the agribusiness environment, food traceability serves several different functions for various constituencies including identification of the origin of contaminated food (public safety), the limitation of liability in the event of disease outbreak (business), and information about inferred physical quality characteristics (consumer). In addition to the underlying complexity of agricultural supply chains, there is also the established trend of globalization that adds new dimensions to traceability. Though there are many benefits from world trade, the crossing of borders increases the risks that various types of contamination might spread quickly worldwide. Trading partners from around

the world are increasingly interested in establishing agricultural tracing systems as a means of mitigating the negative economic consequences of disease outbreaks.

Establishing a worldwide tracking system for agricultural products such as beef is a daunting task. Besides technical challenges, there are significant information technologies hurdles that must be overcome. However, as Kevin Aston, the V.P. of marketing at ThingMagic and former Executive Director of MIT Auto-ID Center, stated at Frontline 2004 “once the cost of the infrastructure is covered, the cost of the information is free.” Like bridges, public utilities, and the national interstate highway system, investments in infrastructure are often significant and require intensive engineering to determine the optimal design. However, once standards are tested and set, designs can be duplicated many times, reducing the incremental cost of application and building a sustainable infrastructure that can return many future benefits.

The EPCglobal Network follows this pattern and shares the characteristics of physical infrastructure development. While the EPC is in the beginning stages of application, there is no question that once the proper infrastructure is developed, benefits will flow to firms many years into the future.

